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IN THE UNI1450TED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): KO, Moon-Jung

Examiner: WILLIE, Daniel J. Jr.

Serial No.: 09/853,102

Group Art Unit: 2617

Filed: May 10, 2001

Docket: 678-614 (P9725)

For: **APPARATUS AND METHOD FOR CONTROLLING OPENING AND CLOSING OF SUB-BODY IN AN AUTOMATICALLY AND MANUALLY FOLDABLE PORTABLE WIRELESS TERMINAL**

Dated: February 14, 2007

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313

TRANSMITTAL OF APPELLANT'S BRIEF ON APPEAL

Sir:

Enclosed please find APPELLANT'S BRIEF.

Also enclosed is a check in the amount of $500.00 to cover the appeal fee.

If the enclosed check is insufficient for any reason or becomes detached, please charge the required fee under 37 C.F.R. §1.17 to Deposit Account No. 50-4053. Also, in the event any additional extensions of time are required, please treat this paper as a petition to extend the time as required and charge Deposit Account No. 50-4053. TWO COPIES OF THIS SHEET ARE ENCLOSED.

Respectfully submitted,

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Dated: February 14, 2007

Thomas C. Schoeffler

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

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APPEAL BRIEF

REAL PARTY IN INTEREST

The real party in interest is Samsung Electronics Co, Ltd, the assignee of the subject application, having an office at 416, Maetan-dong, Yeongtong-gu, Suwon-si, Gyeonggi-do, Republic of Korea.

RELATED APPEALS AND INTERFERENCES

To the best of Appellant's knowledge and belief, there are no currently pending related appeals, interferences or judicial proceedings.

CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8 (a)

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STATUS OF CLAIMS

Original Claims 1-8 were filed on May 10, 2001. Page 5, line 7, and page 11, line 11 of the present application were amended in an Amendment filed September 2, 2004. Claims 1, 2, 4 and 6 were amended in an Amendment filed August 13, 2004. Claims 1, 4 and 6-8 were amended, and Claim 3 was canceled in an Amendment filed April 28, 2005. Claims 1, 4 and 6-8 were amended in Amendments filed December 12, 2005 and January 17, 2006. Thus, Claims 1, 2, 4 and 6-8 are pending in the Appeal. Claims 1, 4 and 6-8 are in independent form. For the purposes of this appeal, each one of Claims 1 and 6-8 stands or falls alone, and Claims 4 and 5 stand or fall together.

STATUS OF AMENDMENTS

An Office Action marked "Final" was mailed on August 14, 2006. All amendments filed prior to the August 14, 2006 Office Action have been entered. A response to the August 14, 2006 Office Action was filed on November 14, 2006 with no amendments to the claims. An Advisory Action issued on December 5, 2006 that indicated, in item 11, that the November 14, 2006 response had been considered but did not place the application in condition for allowance.

SUMMARY OF CLAIMED SUBJECT MATTER

The invention as recited in Claim 1 relates to an automatically and manually folded portable wireless terminal having at least a main body and a sub-body installed on the main body so as to be opened and closed. FIGs. 1A and 1B, Specification at pages 2 through 6.

The portable wireless terminal includes a first sensor for sensing a complete opening of the sub-body from the main body. FIGs. 1A, 1B, and 2, Specification at pages 2 through 6.

The portable wireless terminal also includes a second sensor for sensing a complete closing of the sub-body onto the main body. FIGs. 1A, 1B, and 2, Specification at pages 2 through 6.

The portable wireless terminal also includes an opening/closing device for opening/closing the sub-body in accordance with a control of opening/closing of the sub-body and having a motor housed inside of the terminal. FIGs. 1A, 1B, and 2, Specification at pages 2 through 6.

The portable wireless terminal also includes a motor overcurrent monitoring section having a current sensing resistor located between a first node and a second node determining an overload

condition of the motor based on a difference between a first voltage applied to the first node and a second voltage applied to the second node for monitoring current flow to the motor to determine an overload condition of the motor. FIGs. 1A, 1B, and 2-4, Specification at pages 2 through 12.

The portable wireless terminal also includes a control device for controlling operation of the motor in accordance with the overload condition as determined by the motor overcurrent monitoring section when complete opening/closing of the sub-body is sensed by the first and the second sensors when the opening/closing device automatically opens/closes the sub-body, and after at least one additional cycle of the motor after an overload condition is determined. FIGs. 3 and 4, Specification at pages 2 through 12.

The invention as recited in Claim 4 relates to a method for controlling opening/closing of a sub-body in a foldable portable wireless terminal having at least a main body, a sub-body installed on the main body so as to be openable and closable, a first sensor installed in the main body for sensing a complete opening of the sub-body from the main body, and a second sensor installed in the main body and the sub-body for sensing a complete closing of the sub-body onto the main body. FIGs. 1A, 1B and 2, Specification at pages 2 through 6.

The method of Claim 4 includes determining whether or not a complete opening/closing of the sub-body is sensed by the first and the second sensors during automatic opening/closing of the sub-body. FIGs. 1A, 1B and 2, Specification at pages 2 through 6.

The method of Claim 4 also includes determining an overload condition of a motor housed inside of the terminal based on current supplied to the motor if incomplete opening/closing of the sub-body is sensed by using a current sensing resistor located between a first node and a second node and determining an overload condition of the motor based on a difference between a first voltage applied to the first node and a second voltage applied to the second node. FIGs. 3 and 4, Specification at pages 2 through 12.

The method of Claim 4 also includes controlling operation of the motor in accordance with the determined overload condition. FIGs. 3 and 4, Specification at pages 2 through 12.

The invention as recited in Claim 6 relates to a method for controlling opening/closing of a sub-body in a foldable portable wireless terminal having a main body and a sub-body installed on the

main body so as to be openable and closable. FIGs. 1A, 1B and 2, Specification at pages 2 through 6.

The method of Claim 6 includes the step of operating a motor for automatically opening/closing the sub-body in accordance with an input by a user. FIGs. 3 and 4, Specification at pages 2 through 12.

The method of Claim 6 also includes determining an overload condition of the motor for opening/closing the sub-body based on a voltage difference corresponding to a current difference between the current supplied to the motor in a normal operation and the current supplied to the motor in the overload condition by using a current sensing resistor located between a first node and a second node and determining an overload condition of the motor based on a difference between a first voltage applied to the first node and a second voltage applied to the second node. FIGs. 3 and 4, Specification at pages 2 through 12.

The method of Claim 6 also includes controlling operation of the motor for opening/closing the sub-body in accordance with the determined overload condition. FIGs. 3 and 4, Specification at pages 2 through 12.

The invention as recited in Claim 7 relates to a method for controlling opening/closing of a sub-body in a foldable portable wireless terminal having at least a main body, a sub-body installed on the main body so as to be openable and closable, a first sensor for sensing a complete opening of the sub-body from the main body, and a second sensor for sensing a complete closing of the sub-body onto the main body. FIGs. 1A, 1B and 2, Specification at pages 2 through 6.

The method of Claim 7 includes determining an overloaded state of a motor housed inside of the terminal based on the current supplied to the housed motor if incomplete opening/closing of the sub-body is sensed by using a current sensing resistor located between a first node and a second node and determining an overload condition of the motor based on a difference between a first voltage applied to the first node and a second voltage applied to the second node. FIGs. 3 and 4, Specification at pages 2 through 12.

The method of Claim 7 also includes controlling opening/closing of the sub-body repeatedly as many times as predetermined if incomplete opening/closing of the sub-body has been sensed and the housed motor is in an overloaded state. FIGs. 3 and 4, Specification at pages 2 through 12.

The method of Claim 7 also includes returning the sub-body to an initial state if incomplete opening/closing of the sub-body is sensed and the overloaded state continues after at least one additional cycle of the motor. FIGs. 3 and 4, Specification at pages 2 through 12.

The invention as recited in Claim 8 relates to a method for controlling opening/closing of a sub-body in an automatically and manually folded portable wireless terminal having at least a main body, a sub-body installed on the main body so as to be openable and closable, and a sensor for sensing a complete opening of the sub-body from the main body. FIGs. 1A, 1B and 2, Specification at pages 2 through 6.

The method of Claim 8 includes determining whether or not the sensor senses a complete opening of the sub-body during automatic opening. FIGs. 3 and 4, Specification at pages 2 through 12.

The method of Claim 8 also includes determining an overloaded state of a motor housed inside of the terminal based on current supplied to the housed motor if incomplete opening is sensed by the sensor and by using a current sensing resistor located between a first node and a second node and determining an overload condition of the motor based on a difference between a first voltage applied to the first node and a second voltage applied to the second node. FIGs. 3 and 4, Specification at pages 2 through 12.

The method of Claim 8 also includes controlling opening of the sub-body as many times as predetermined if incomplete opening is sensed and the housed motor is determined to be in an overloaded state. FIGs. 3 and 4, Specification at pages 2 through 12.

The method of Claim 8 also includes ceasing operation of the housed motor if incomplete opening of the sub-body is sensed and the overloaded state of the housed motor continues after at least one additional cycle of the motor. FIGs. 3 and 4, Specification at pages 2 through 12.

GROUNDS FOR REJECTION TO BE REVIEWED ON APPEAL

Whether Claim 1 under 35 U.S.C. § 103(a) is unpatentable over U.S. Patent No. 6,628,974 B1 to Lim ("Lim") in view of U.S. Patent No. 5,723,959 to Iwata ("Iwata") and U.S. Patent No. 4,394,607 to Lemirande ("Lemirande").

Whether Claims 4 and 5 under 35 U.S.C. § 103(a) are unpatentable over Lim in view of Iwata and Lemirande.

Whether Claim 6 under 35 U.S.C. § 103(a) is unpatentable over Lim in view of Iwata and Lemirande.

Whether Claim 7 under 35 U.S.C. § 103(a) is unpatentable over Lim in view of Iwata and Lemirande.

Whether Claim 8 under 35 U.S.C. § 103(a) is unpatentable over Lim in view of Iwata and Lemirande.

ARGUMENT

1. Claim 1 is patentable over Lim in view of Iwata and Lemirande

Claim 1 was said to be unpatentable over Lim in view of Iwata and Lemirande.

Claim 1 is directed to an automatically and manually folded portable wireless terminal having at least a main body and a sub-body installed on the main body so as to be opened and closed. The terminal of Claim 1 includes a first sensor for sensing a complete opening of the sub-body from the main body, and a second sensor for sensing a complete closing of the sub-body onto the main body. The terminal of Claim 1 also includes a motor overcurrent monitoring section having a current sensing resistor located between a first node and a second node determining an overload condition of the motor based on a difference between a first voltage applied to the first node and a second voltage applied to the second node for monitoring current flow to the motor to determine an overload condition of the motor. The terminal of Claim 1 also includes a control device for controlling operation of the motor in accordance with the overload condition as determined by the motor overcurrent monitoring section when complete opening/closing of the sub-body is sensed by the first and the second sensors when the opening/closing device automatically opens/closes the sub-body, and after at least one additional cycle of the motor after an overload condition is determined.

The Examiner has conceded that Lim does not disclose a motor overcurrent monitoring section and a control device as recited in Claim 1. The Examiner states that Iwata shows that aspects of the recited motor overcurrent monitoring section and control device were well known in the art, that Lemirande shows that the current sensing resistor aspect of the motor overcurrent monitoring section was well known in the art, and asserts that it would have been obvious to one skilled in the art at the time the invention was made to combine the teachings of Lim and Iwata with Lemirande.

Lim describes a folder operating apparatus for a cellular phone. Iwata describes a power window driving control device in which a foreign object is not continued to be caught between a window glass and a window frame even if the foreign object exists on the path along which the window glass is raised. Lemirande describes a control system for operating a bi-directional gate driven by a reversible electric motor that includes an overload protection circuit to prevent motor current overload produced by gate obstructions and the like.

The Examiner has consistently failed to show that Lim, Iwata, Lemirande, or any combination thereof, teaches or reasonably suggests a first sensor for sensing a complete opening of the sub-body from the main body, a second sensor for sensing a complete closing of the sub-body onto the main body, a motor overcurrent monitoring section having a current sensing resistor located between a first node and a second node determining an overload condition of the motor based on a difference between a first voltage applied to the first node and a second voltage applied to the second node for monitoring current flow to the motor to determine an overload condition of the motor, and a control device for controlling operation of the motor in accordance with the overload condition as determined by the motor overcurrent monitoring section when complete opening/closing of the sub-body is sensed by the first and the second sensors when the opening/closing device automatically opens/closes the sub-body, and after at least one additional cycle of the motor after an overload condition is determined, as recited in Claim 1.

Position detectors 51 and 52 of Lim fail to satisfy the recited first and second sensors, as improperly and erroneously purported by the Examiner. Position detectors 51 and 52, which are part of position detecting section 50, only detect the position of the rotating section 10, as Lim describes in col. 5, lines 11-13. Lim expressly states from col. 6, line 60, to col. 7, line 3, that position detectors 51 and 52 are installed on positions of the power transferring section 20 and the rotating section 10 to face each other, and the position detectors 51 and 52 obtain the same-phase information and apply a specified control signal to the driving section 11. When the rotating section 10 and the power transferring section 20 have the same phase, the position detecting section 50 detects it, and applies a stop control signal to the driving section 11 to control the driving section 11.

Position detectors 51 and 52 merely sense whether the rotating section 10 and the power transferring section 20 have the same phase, and **do not** detect a complete opening or a complete closing of the folder 2 with respect to the body 1. Lim nowhere teaches or reasonably suggests that position detector 51 senses a complete opening of the folder 2 from the body 1, or that position

detector 52 senses a complete closing of the folder 2 onto the body 1. Accordingly, Lim fails to teach or reasonably suggest the first sensor or the second sensor recited in the Claim 1.

In addition, Lim only discontinues driving the motor based on a single condition that the position detectors 51 and 52 have the same phase. In contrast, the present invention discontinues driving the motor based on two conditions including (1) when complete opening/closing of the sub-body is sensed by the first and second sensors when the opening/closing device automatically opens/closes the sub-body, **and** (2) after at least one additional cycle of the motor after an overload condition is determined. The present invention discontinues to drive a motor on both of the above conditions and, therefore, the present invention can appropriately and more exactly control a closing and opening position of the sub-body.

After conceding that Lim failed to disclose the motor overcurrent monitoring section and control device recited in Claim 1, the Examiner has improperly and erroneously stated that Iwata shows that aspects of the recited motor overcurrent monitoring section and control device were well known in the art.

Iwata describes a power window driving control device that is non-analogous to the portable wireless terminal art, in which a foreign object is not continued to be caught between a window glass and a window frame even if the foreign object exists on the path along which the window glass is raised. Iwata describes six embodiments of a power window driving control device that vertically move a window glass. Iwata explains in col. 30, lines 14-22, that the disclosed power window driving control device can also be applied to a window glass that is moved horizontally, or to a window glass that is moved in an inclined or a transverse direction. Iwata nowhere suggests applying the power window driving control device to a portable wireless terminal. The power window driving control device of the six embodiments is also large and includes numerous relays and switches.

The Examiner has improperly stated the motor lock detection circuit 88 of Iwata reads on the claimed motor overcurrent monitoring section, except for the recited current sensing resistor, and that the control device 10 of Iwata satisfies the recited control device.

Iwata plainly describes, from col. 7, lines 52-62, that when a rising window is completely closed, the motor 12 is overloaded, excess current I1 is generated, the coil 22 becomes non-energized, and the rotation of the motor 12 stops. Iwata does not drive the motor 12 for one additional cycle after the rising window 12 is completely closed. Iwata also explains, from col. 7,

line 63, to col. 8, line 14, that when a window glass becomes impeded due to an obstacle caught between the window glass and the window frame as the window glass is being closed, the motor 12 is overloaded, abnormal current I2 is generated and overloads the motor 12, the sensor 96 is off, and the motor 12 is driven in reverse so the window glass begins to be lowered. When the motor 12 is overloaded due to an obstacle being caught between the window glass and the window frame, the sensor 96 is off and never senses closure of the window glass.

In Iwata, the control section 10 stops rotation of the motor 12 when the window is closed, and the control section 10 causes reverse rotation of the motor 12 when an obstacle impedes movement of the window, and one additional cycle of the motor 12 does not occur. When an obstacle impedes movement of the window, complete closure of the window is not sensed by the sensor 96. Accordingly, Iwata fails to teach or reasonably suggest a motor overcurrent monitoring section according to the present invention.

In contrast, in the present invention, complete opening/closing of the sub-body 120 is sensed by the first and second sensors 236 and 238 when the opening/closing device automatically opens/closes the sub-body 120, **and** after at least one additional cycle of the motor after an overload condition is determined. The present invention discontinues driving the motor based on two conditions including (1) when complete opening/closing of the sub-body is sensed by the first and second sensors when the opening/closing device automatically opens/closes the sub-body, **and** (2) after at least one additional cycle of the motor after an overload condition is determined. Iwata nowhere teaches or reasonably suggests discontinuing driving motor 12 based on the two conditions recited in Claim 1. Accordingly, the motor lock detection circuit 88 of Iwata fails to satisfy the claimed motor overcurrent monitoring section, and the control device 10 of Iwata fails to satisfy the recited control device.

Lemirande fails to supplement the deficiencies of Lim and Iwata.

Lim, Iwata, Lemirande, or any combination thereof, fails to teach or reasonably suggest an automatically and manually folded portable wireless terminal having at least a main body and a sub-body installed on the main body so as to be opened and closed, including a first sensor for sensing a complete opening of the sub-body from the main body; a second sensor for sensing a complete closing of the sub-body onto the main body; an opening/closing device for opening/closing the sub-body in accordance with a control of opening/closing of the sub-body and having a motor housed inside of the terminal; a motor overcurrent monitoring section having a current sensing

resistor located between a first node and a second node determining an overload condition of the motor based on a difference between a first voltage applied to the first node and a second voltage applied to the second node for monitoring current flow to the motor to determine an overload condition of the motor; and a control device for controlling operation of the motor in accordance with the overload condition as determined by the motor overcurrent monitoring section when complete opening/closing of the sub-body is sensed by the first and the second sensors when the opening/closing device automatically opens/closes the sub-body, and after at least one additional cycle of the motor after an overload condition is determined, as recited in Claim 1.

The Examiner has failed to show that Lim, Iwata, Lemirande, or any combination thereof, teaches or reasonably suggests the first sensor, the second sensor, the motor overcurrent monitoring section, and the control device recited in Claim 1. It is well known that all of the claimed limitations must be taught or suggested by the prior art, and there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine the reference teachings. *In re Vaek,* 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

In addition, the present invention addresses the problem of efficiently and precisely opening and closing the sub-body of a portable wireless terminal by providing a device for controlling the opening/closing of a sub-body in an automatically and manually folded portable wireless terminal.

Iwata describes a power window driving control device which moves a window glass of a vehicle in directions by the driving force of a motor. The Iwata power window driving control device enables a foreign object to not continue to be caught between a window glass and a window frame even if a foreign object exists on the path along which the window glass is raised. The Iwata power window driving control device is large and includes numerous relays and switches, and effects vertical movement of a window glass. Iwata addresses the problem of foreign objects becoming caught between a window glass and a glass frame even if a foreign object exists on a path along which the window glass is raised. Iwata is not reasonably pertinent to the particular problem with which Appellant was concerned, e.g. for providing an apparatus for more efficiently and precisely controlling the position of opening and closing a sub-body (folder) of an automatic foldable mobile communication terminal.

Iwata is **non-analogous art** and one skilled in the art at the time the invention was made would not have arrived at the present invention based on Lim, Iwata, Lemirande, or any combination

thereof, because the skilled artisan would not have considered the Iwata power window driving control device to control opening and closing of a sub-body in an automatically and manually foldable mobile communication terminal because the Iwata power window driving control device is large and includes numerous relays and switches, and effects movement of a window glass in which a foreign object is not continued to be caught between a window glass and a window frame even if the foreign object exists on the path along which the window glass is raised.

Iwata is **non-analogous art** and is not applicable to addressing the obviousness of the subject matter at issue because Iwata is not in the field of Appellant's endeavor, and Iwata is not reasonably pertinent to the particular problem with which Appellant was concerned. For a reference to be applicable to addressing obviousness of the subject matter at issue, the reference must either be in the field of Appellant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the invention was concerned. *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). Further evidence of non-analogy is apparent because Iwata is classified in 318/447 while Lim is classified in 455/575, and because Iwata is different in structure and function from the present invention. The differences in structure and function of Iwata to the present invention carry far greater weight regarding analogy of Iwata to the present invention. *In re Ellis*, 476 F.2d 1370, 1372, 177 USPQ 526, 527 (CCPA 1973).

Furthermore, the Examiner has used Appellant's application as a blueprint and has merely focused on the differences between Lim, Iwata, Lemirande, and the claimed invention, and then stated that the differences themselves or individually are obvious after picking and choosing selected items from the prior art. It is well known that it is improper to use the claims as a frame, and use individual parts of prior art as a mosaic to recreate a facsimile of the invention. *Interconnect Planning Corp. v. Feil*, 227 USPQ 2d 543, 551 (Fed. Cir. 1985).

The Examiner has failed to establish a *prima facie* case of obviousness of Claim 1 for at least these reasons.

2. Claim 4 is patentable over Lim in view of Iwata and Lemirande

Claim 4 was said to be unpatentable over Lim in view of Iwata and Lemirande.

Claim 4 is directed to an method for controlling opening/closing of a sub-body in a foldable portable wireless terminal having at least a main body, a sub-body installed on the main body so as

to be openable and closable, a first sensor installed in the main body for sensing a complete opening of the sub-body from the main body, and a second sensor installed in the main body and the sub-body for sensing a complete closing of the sub-body onto the main body.

The method of Claim 4 includes determining whether or not a complete opening/closing of the sub-body is sensed by the first and the second sensors during automatic opening/closing of the sub-body. The method of Claim 4 also includes determining an overload condition of a motor housed inside of the terminal based on current supplied to the motor if incomplete opening/closing of the sub-body is sensed by using a current sensing resistor located between a first node and a second node and determining an overload condition of the motor based on a difference between a first voltage applied to the first node and a second voltage applied to the second node. The method of Claim 4 also includes controlling operation of the motor in accordance with the determined overload condition

The Examiner has conceded that Lim does not disclose the determining an overload condition steps as recited in Claim 4. The Examiner has stated that Iwata shows that aspects of the recited determining an overload condition steps were well known in the art, that Lemirande shows that the current sensing resistor aspect of the determining an overload condition step was well known in the art, and asserts that it would have been obvious to one skilled in the art at the time the invention was made to combine the teachings of Lim and Iwata with Lemirande.

In Iwata, the control section 10 does not determine an overload condition of the motor 12 based on current supplied to the motor 12 if incomplete opening/closing of the window is sensed by using a current sensing resistor located between a first node and a second node and determining an overload condition of the motor 12 based on a difference between a first voltage applied to the first node and a second voltage applied to the second node.

In contrast, in the present invention, the control section 200 determines an overload condition of the motor 234 determining an overload condition of the motor 234 housed inside of the terminal 100 based on current supplied to the motor 234 if incomplete opening/closing of the sub-body is sensed by using a current sensing resistor located between a first node and a second node and determining an overload condition of the motor 234 based on a difference between a first voltage applied to the first node and a second voltage applied to the second node. The present invention determines an overload condition of the motor based on two conditions including (1) current supplied to the motor 234 if incomplete opening/closing of the sub-body is sensed by using a current

sensing resistor located between a first node and a second node, **and** (2) a difference between a first voltage applied to the first node and a second voltage applied to the second node.

Lemirande fails to supplement the deficiencies of Lim and Iwata.

Lim, Iwata, Lemirande, or any combination thereof, fails to teach or reasonably suggest a method for controlling opening/closing of a sub-body in a foldable portable wireless terminal having at least a main body, a sub-body installed on the main body so as to be openable and closable, a first sensor installed in the main body for sensing a complete opening of the sub-body from the main body, and a second sensor installed in the main body and the sub-body for sensing a complete closing of the sub-body onto the main body, the method including determining whether or not a complete opening/closing of the sub-body is sensed by the first and the second sensors during automatic opening/closing of the sub-body; determining an overload condition of a motor housed inside of the terminal based on current supplied to the motor if incomplete opening/closing of the sub-body is sensed by using a current sensing resistor located between a first node and a second node and determining an overload condition of the motor based on a difference between a first voltage applied to the first node and a second voltage applied to the second node; and controlling operation of the motor in accordance with the determined overload condition, as recited in Claim 4.

The Examiner has failed to show that Lim, Iwata, Lemirande, or any combination thereof, teaches or reasonably suggests the first sensor, the second sensor, and the determining an overload steps recited in Claim 4. It is well known that all of the claimed limitations must be taught or suggested by the prior art, and there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine the reference teachings. *In re Vaek,* 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

In addition, the present invention addresses the problem of efficiently and precisely opening and closing the sub-body of a portable wireless terminal by providing a device for controlling the opening/closing of a sub-body in an automatically and manually folded portable wireless terminal.

Iwata describes a power window driving control device which moves a window glass of a vehicle in directions by the driving force of a motor. The Iwata power window driving control device enables a foreign object to not continue to be caught between a window glass and a window frame even if a foreign object exists on the path along which the window glass is raised. The Iwata power window driving control device is large and includes numerous relays and switches, and effects

vertical movement of a window glass. Iwata addresses the problem of foreign objects becoming caught between a window glass and a glass frame even if a foreign object exists on a path along which the window glass is raised. Iwata is not reasonably pertinent to the particular problem with which Appellant was concerned, e.g. for providing an apparatus for more efficiently and precisely controlling the position of opening and closing a sub-body (folder) of an automatic foldable mobile communication terminal.

Iwata is **non-analogous art** and one skilled in the art at the time the invention was made would not have arrived at the present invention based on Lim, Iwata, Lemirande, or any combination thereof, because the skilled artisan would not have considered the Iwata power window driving control device to control opening and closing of a sub-body in an automatically and manually foldable mobile communication terminal because the Iwata power window driving control device is large and includes numerous relays and switches, and effects movement of a window glass in which a foreign object is not continued to be caught between a window glass and a window frame even if the foreign object exists on the path along which the window glass is raised.

Iwata is **non-analogous art** and is not applicable to addressing the obviousness of the subject matter at issue because Iwata is not in the field of Appellant's endeavor, and Iwata is not reasonably pertinent to the particular problem with which Appellant was concerned. For a reference to be applicable to addressing obviousness of the subject matter at issue, the reference must either be in the field of Appellant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the invention was concerned. *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). Further evidence of non-analogy is apparent because Iwata is classified in 318/447 while Lim is classified in 455/575, and because Iwata is different in structure and function from the present invention. The differences in structure and function of Iwata to the present invention carry far greater weight regarding analogy of Iwata to the present invention. *In re Ellis*, 476 F.2d 1370, 1372, 177 USPQ 526, 527 (CCPA 1973).

Furthermore, the Examiner has used Appellant's application as a blueprint and has merely focused on the differences between Lim, Iwata, Lemirande, and the claimed invention, and then stated that the differences themselves or individually are obvious after picking and choosing selected items from the prior art. It is well known that it is improper to use the claims as a frame, and use individual parts of prior art as a mosaic to recreate a facsimile of the invention. *Interconnect Planning Corp. v. Feil*, 227 USPQ 2d 543, 551 (Fed. Cir. 1985).

The Examiner has failed to establish a *prima facie* case of obviousness of Claim 4 for at least these reasons.

3. Claim 6 is patentable over Lim in view of Iwata and Lemirande

Claim 6 was said to be unpatentable over Lim in view of Iwata and Lemirande.

Claim 6 is directed to a method for controlling opening/closing of a sub-body in a foldable portable wireless terminal having a main body and a sub-body installed on the main body so as to be openable and closable.

The method of Claim 6 includes operating a motor for automatically opening/closing the sub-body in accordance with an input by a user. The method of Claim 6 also includes determining an overload condition of the motor for opening/closing the sub-body based on a voltage difference corresponding to a current difference between the current supplied to the motor in a normal operation and the current supplied to the motor in the overload condition by using a current sensing resistor located between a first node and a second node and determining an overload condition of the motor based on a difference between a first voltage applied to the first node and a second voltage applied to the second node. The method of Claim 6 also includes controlling operation of the motor for opening/closing the sub-body in accordance with the determined overload condition.

The Examiner has conceded that Lim does not disclose the determining an overload condition steps as recited in Claim 6. The Examiner has stated that Iwata shows that aspects of the recited determining an overload condition steps were well known in the art, that Lemirande shows that the current sensing resistor aspect of the determining an overload condition step was well known in the art, and asserts that it would have been obvious to one skilled in the art at the time the invention was made to combine the teachings of Lim and Iwata with Lemirande.

In Iwata, the control section 10 does not determine an overload condition of the motor 12 for based on a voltage difference corresponding to a current difference between the current supplied to the motor 12 in a normal operation and the current supplied to the motor 12 in the overload condition by using a current sensing resistor located between a first node and a second node and determining an overload condition of the motor based on a difference between a first voltage applied to the first node and a second voltage applied to the second node.

In contrast, in the present invention, the control section 200 determines an overload condition

of the motor 234 for opening/closing the sub-body 120 based on a voltage difference corresponding to a current difference between the current supplied to the motor 234 in a normal operation and the current supplied to the motor 234 in the overload condition by using a current sensing resistor R_{is} located between a first node and a second node and determining an overload condition of the motor 234 based on a difference between a first voltage applied to the first node and a second voltage applied to the second node. The present invention determines an overload condition of the motor based on two conditions including (1) when a voltage difference between the current supplied to the motor in a normal operation and the current supplied to the motor in the overload condition, **and** (2) when a difference between a first voltage applied to the first node and a second voltage applied to the second node.

Lemirande fails to supplement the deficiencies of Lim and Iwata.

Lim, Iwata, Lemirande, or any combination thereof, fails to teach or reasonably suggest an method for controlling opening/closing of a sub-body in a foldable portable wireless terminal having a main body and a sub-body installed on the main body so as to be openable and closable, the method including operating a motor for automatically opening/closing the sub-body in accordance with an input by a user; determining an overload condition of the motor for opening/closing the sub-body based on a voltage difference corresponding to a current difference between the current supplied to the motor in a normal operation and the current supplied to the motor in the overload condition by using a current sensing resistor located between a first node and a second node and determining an overload condition of the motor based on a difference between a first voltage applied to the first node and a second voltage applied to the second node; and controlling operation of the motor for opening/closing the sub-body in accordance with the determined overload condition, as recited in Claim 6.

The Examiner has failed to show that Lim, Iwata, Lemirande, or any combination thereof, teaches or reasonably suggests determining an overload steps recited in Claim 6. It is well known that all of the claimed limitations must be taught or suggested by the prior art, and there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine the reference teachings. *In re Vaek,* 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

In addition, the present invention addresses the problem of efficiently and precisely opening and closing the sub-body of a portable wireless terminal by providing a device for controlling the

opening/closing of a sub-body in an automatically and manually folded portable wireless terminal.

Iwata describes a power window driving control device which moves a window glass of a vehicle in directions by the driving force of a motor. The Iwata power window driving control device enables a foreign object to not continue to be caught between a window glass and a window frame even if a foreign object exists on the path along which the window glass is raised. The Iwata power window driving control device is large and includes numerous relays and switches, and effects vertical movement of a window glass. Iwata addresses the problem of foreign objects becoming caught between a window glass and a glass frame even if a foreign object exists on a path along which the window glass is raised. Iwata is not reasonably pertinent to the particular problem with which Appellant was concerned, e.g. for providing an apparatus for more efficiently and precisely controlling the position of opening and closing a sub-body (folder) of an automatic foldable mobile communication terminal.

Iwata is **non-analogous art** and one skilled in the art at the time the invention was made would not have arrived at the present invention based on Lim, Iwata, Lemirande, or any combination thereof, because the skilled artisan would not have considered the Iwata power window driving control device to control opening and closing of a sub-body in an automatically and manually foldable mobile communication terminal because the Iwata power window driving control device is large and includes numerous relays and switches, and effects movement of a window glass in which a foreign object is not continued to be caught between a window glass and a window frame even if the foreign object exists on the path along which the window glass is raised.

Iwata is **non-analogous art** and is not applicable to addressing the obviousness of the subject matter at issue because Iwata is not in the field of Appellant's endeavor, and Iwata is not reasonably pertinent to the particular problem with which Appellant was concerned. For a reference to be applicable to addressing obviousness of the subject matter at issue, the reference must either be in the field of Appellant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the invention was concerned. *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). Further evidence of non-analogy is apparent because Iwata is classified in 318/447 while Lim is classified in 455/575, and because Iwata is different in structure and function from the present invention. The differences in structure and function of Iwata to the present invention carry far greater weight regarding analogy of Iwata to the present invention. *In re Ellis*, 476 F.2d 1370, 1372, 177 USPQ 526, 527 (CCPA 1973).

Furthermore, the Examiner has used Appellant's application as a blueprint and has merely focused on the differences between Lim, Iwata, Lemirande, and the claimed invention, and then stated that the differences themselves or individually are obvious after picking and choosing selected items from the prior art. It is well known that it is improper to use the claims as a frame, and use individual parts of prior art as a mosaic to recreate a facsimile of the invention. *Interconnect Planning Corp. v. Feil*, 227 USPQ 2d 543, 551 (Fed. Cir. 1985).

The Examiner has failed to establish a *prima facie* case of obviousness of Claim 6 for at least these reasons.

4. Claim 7 is patentable over Lim in view of Iwata and Lemirande

Claim 7 was said to be unpatentable over Lim in view of Iwata and Lemirande.

Claim 7 is directed to a method for controlling opening/closing of a sub-body in a foldable portable wireless terminal having at least a main body, a sub-body installed on the main body so as to be openable and closable, a first sensor for sensing a complete opening of the sub-body from the main body, and a second sensor for sensing a complete closing of the sub-body onto the main body, the method.

The method of Claim 7 includes determining an overloaded state of a motor housed inside of the terminal based on the current supplied to the housed motor if incomplete opening/closing of the sub-body is sensed by using a current sensing resistor located between a first node and a second node and determining an overload condition of the motor based on a difference between a first voltage applied to the first node and a second voltage applied to the second node. The method of Claim 7 also includes controlling opening/closing of the sub-body repeatedly as many times as predetermined if incomplete opening/closing of the sub-body has been sensed and the housed motor is in an overloaded state. The method of Claim 7 also includes returning the sub-body to an initial state if incomplete opening/closing of the sub-body is sensed and the overloaded state continues after at least one additional cycle of the motor.

Position detectors 51 and 52 of Lim fail to satisfy the recited first and second sensors, as improperly and erroneously purported by the Examiner. Position detectors 51 and 52, which are part of position detecting section 50, only detect the position of the rotating section 10, as Lim describes in col. 5, lines 11-13. Lim expressly states from col. 6, line 60, to col. 7, line 3, that position

detectors 51 and 52 are installed on positions of the power transferring section 20 and the rotating section 10 to face each other, and the position detectors 51 and 52 obtain the same-phase information and apply a specified control signal to the driving section 11. When the rotating section 10 and the power transferring section 20 have the same phase, the position detecting section 50 detects it, and applies a stop control signal to the driving section 11 to control the driving section 11.

Position detectors 51 and 52 merely sense whether the rotating section 10 and the power transferring section 20 have the same phase, and **do not** detect a complete opening or a complete closing of the folder 2 with respect to the body 1. Lim nowhere teaches or reasonably suggests that position detector 51 senses a complete opening of the folder 2 from the body 1, or that position detector 52 senses a complete closing of the folder 2 onto the body 1. Accordingly, Lim fails to teach or reasonably suggest the first sensor or the second sensor recited in the Claim 7.

The Examiner has conceded that Lim does not disclose the determining an overloaded state step as recited in Claim 7. The Examiner has stated that Iwata shows that aspects of the recited determining an overloaded state step were well known in the art, that Lemirande shows that the current sensing resistor aspect of the determining an overloaded state step was well known in the art, and asserts that it would have been obvious to one skilled in the art at the time the invention was made to combine the teachings of Lim and Iwata with Lemirande.

In Iwata, the control section 10 does not determine an overloaded state of the motor 12 based on based on the current supplied to the housed motor if incomplete opening/closing of the sub-body is sensed by using a current sensing resistor located between a first node and a second node and determining an overload condition of the motor based on a difference between a first voltage applied to the first node and a second voltage applied to the second node.

In contrast, in the present invention, the control section 200 determines an overloaded state of the motor 234 based on the current supplied to the housed motor if incomplete opening/closing of the sub-body is sensed by using a current sensing resistor located between a first node and a second node and determining an overload condition of the motor based on a difference between a first voltage applied to the first node and a second voltage applied to the second node. The present invention determines an overloaded state of the motor based on two conditions including (1) when incomplete opening/closing of the sub-body is sensed by using a current sensing resistor located between a first node and a second node and (2) when a difference between a first voltage applied to the first node and a second voltage applied to the second node.

Lemirande fails to supplement the deficiencies of Lim and Iwata.

Lim, Iwata, Lemirande, or any combination thereof, fails to teach or reasonably suggest a method for controlling opening/closing of a sub-body in a foldable portable wireless terminal having a first sensor for sensing a complete opening of the sub-body from the main body, and a second sensor for sensing a complete closing of the sub-body onto the main body, the method including determining an overloaded state of a motor housed inside of the terminal based on the current supplied to the housed motor if incomplete opening/closing of the sub-body is sensed by using a current sensing resistor located between a first node and a second node and determining an overload condition of the motor based on a difference between a first voltage applied to the first node and a second voltage applied to the second node; controlling opening/closing of the sub-body repeatedly as many times as predetermined if incomplete opening/closing of the sub-body has been sensed and the housed motor is in an overloaded state; and returning the sub-body to an initial state if incomplete opening/closing of the sub-body is sensed and the overloaded state continues after at least one additional cycle of the motor, as recited in Claim 7.

The Examiner has failed to show that Lim, Iwata, Lemirande, or any combination thereof, teaches or reasonably suggests the first sensor, the second sensor, and the determining an overloaded state step recited in Claim 7. It is well known that all of the claimed limitations must be taught or suggested by the prior art, and there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine the reference teachings. *In re Vaek,* 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

In addition, the present invention addresses the problem of efficiently and precisely opening and closing the sub-body of a portable wireless terminal by providing a device for controlling the opening/closing of a sub-body in an automatically and manually folded portable wireless terminal.

Iwata describes a power window driving control device which moves a window glass of a vehicle in directions by the driving force of a motor. The Iwata power window driving control device enables a foreign object to not continue to be caught between a window glass and a window frame even if a foreign object exists on the path along which the window glass is raised. The Iwata power window driving control device is large and includes numerous relays and switches, and effects vertical movement of a window glass. Iwata addresses the problem of foreign objects becoming caught between a window glass and a glass frame even if a foreign object exists on a path along

which the window glass is raised. Iwata is not reasonably pertinent to the particular problem with which Appellant was concerned, e.g. for providing an apparatus for more efficiently and precisely controlling the position of opening and closing a sub-body (folder) of an automatic foldable mobile communication terminal.

Iwata is **non-analogous art** and one skilled in the art at the time the invention was made would not have arrived at the present invention based on Lim, Iwata, Lemirande, or any combination thereof, because the skilled artisan would not have considered the Iwata power window driving control device to control opening and closing of a sub-body in an automatically and manually foldable mobile communication terminal because the Iwata power window driving control device is large and includes numerous relays and switches, and effects movement of a window glass in which a foreign object is not continued to be caught between a window glass and a window frame even if the foreign object exists on the path along which the window glass is raised.

Iwata is **non-analogous art** and is not applicable to addressing the obviousness of the subject matter at issue because Iwata is not in the field of Appellant's endeavor, and Iwata is not reasonably pertinent to the particular problem with which Appellant was concerned. For a reference to be applicable to addressing obviousness of the subject matter at issue, the reference must either be in the field of Appellant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the invention was concerned. *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). Further evidence of non-analogy is apparent because Iwata is classified in 318/447 while Lim is classified in 455/575, and because Iwata is different in structure and function from the present invention. The differences in structure and function of Iwata to the present invention carry far greater weight regarding analogy of Iwata to the present invention. *In re Ellis*, 476 F.2d 1370, 1372, 177 USPQ 526, 527 (CCPA 1973).

Furthermore, the Examiner has used Appellant's application as a blueprint and has merely focused on the differences between Lim, Iwata, Lemirande, and the claimed invention, and then stated that the differences themselves or individually are obvious after picking and choosing selected items from the prior art. It is well known that it is improper to use the claims as a frame, and use individual parts of prior art as a mosaic to recreate a facsimile of the invention. *Interconnect Planning Corp. v. Feil*, 227 USPQ 2d 543, 551 (Fed. Cir. 1985).

The Examiner has failed to establish a *prima facie* case of obviousness of Claim 7 for at least these reasons.

5. Claim 8 is patentable over Lim in view of Iwata and Lemirande

Claim 8 was said to be unpatentable over Lim in view of Iwata and Lemirande.

Claim 8 is directed to a method for controlling opening/closing of a sub-body in an automatically and manually folded portable wireless terminal having at least a main body, a sub-body installed on the main body so as to be openable and closable, and a sensor for sensing a complete opening of the sub-body from the main body.

The method of Claim 8 includes determining whether or not the sensor senses a complete opening of the sub-body during automatic opening. The method of Claim 8 also includes determining an overloaded state of a motor housed inside of the terminal based on current supplied to the housed motor if incomplete opening is sensed by the sensor and by using a current sensing resistor located between a first node and a second node and determining an overload condition of the motor based on a difference between a first voltage applied to the first node and a second voltage applied to the second node. The method of Claim 8 also includes controlling opening of the sub-body as many times as predetermined if incomplete opening is sensed and the housed motor is determined to be in an overloaded state. The method of Claim 8 also includes ceasing operation of the housed motor if incomplete opening of the sub-body is sensed and the overloaded state of the housed motor continues after at least one additional cycle of the motor.

The Examiner has conceded that Lim does not disclose the determining an overloaded state step and the determining an overload condition step as recited in Claim 8. The Examiner states that Iwata shows that aspects of the recited determining and overloaded state step and the determining an overload condition step were well known in the art, that Lemirande shows that the current sensing resistor aspect of the motor overcurrent monitoring section was well known in the art, and asserts that it would have been obvious to one skilled in the art at the time the invention was made to combine the teachings of Lim and Iwata with Lemirande.

Position detector 51 of Lim fails to satisfy the recited sensor, as improperly and erroneously purported by the Examiner. Position detectors 51 and 52, which are part of position detecting section 50, only detect the position of the rotating section 10, as Lim describes in col. 5, lines 11-13. Lim expressly states from col. 6, line 60, to col. 7, line 3, that position detectors 51 and 52 are installed on positions of the power transferring section 20 and the rotating section 10 to face each

other, and the position detectors 51 and 52 obtain the same-phase information and apply a specified control signal to the driving section 11. When the rotating section 10 and the power transferring section 20 have the same phase, the position detecting section 50 detects it, and applies a stop control signal to the driving section 11 to control the driving section 11.

Position detectors 51 and 52 merely sense whether the rotating section 10 and the power transferring section 20 have the same phase, and **do not** detect a complete opening or a complete closing of the folder 2 with respect to the body 1. Lim nowhere teaches or reasonably suggests that position detector 51 senses a complete opening of the folder 2 from the body 1, or that position detector 52 senses a complete closing of the folder 2 onto the body 1. Accordingly, Lim fails to teach or reasonably suggest the sensor recited in the Claim 8.

In Iwata, the control section 10 does not determine an overloaded state of the motor 12 based on current supplied to the motor 12 if incomplete opening is sensed by the sensor and by using a current sensing resistor located between a first node and a second node and determining an overload condition of the motor based on a difference between a first voltage applied to the first node and a second voltage applied to the second node.

In contrast, in the present invention, the control section 200 determines an overloaded state of a motor 234 housed inside of the terminal 100 based on current supplied to the housed motor 234 if incomplete opening is sensed by the sensor 236 and by using a current sensing resistor R*is* located between a first node and a second node and determining an overload condition of the motor 234 based on a difference between a first voltage applied to the first node and a second voltage applied to the second node. The present invention determines an overloaded state of the motor based on two conditions including (1) when incomplete opening is sensed by the sensor and by using a current sensing resistor located between a first node and a second node and (2) when a difference between a first voltage applied to the first node and a second voltage applied to the second node.

Lemirande fails to supplement the deficiencies of Lim and Iwata.

Lim, Iwata, Lemirande, or any combination thereof, fails to teach or reasonably suggest a method for controlling opening/closing of a sub-body in an automatically and manually folded portable wireless terminal having at least a main body, a sub-body installed on the main body so as to be openable and closable, and a sensor for sensing a complete opening of the sub-body from the main body, the method including determining whether or not the sensor senses a complete opening of the sub-body during automatic opening; determining an overloaded state of a motor housed inside

of the terminal based on current supplied to the housed motor if incomplete opening is sensed by the sensor and by using a current sensing resistor located between a first node and a second node and determining an overload condition of the motor based on a difference between a first voltage applied to the first node and a second voltage applied to the second node; controlling opening of the sub-body as many times as predetermined if incomplete opening is sensed and the housed motor is determined to be in an overloaded state; and ceasing operation of the housed motor if incomplete opening of the sub-body is sensed and the overloaded state of the housed motor continues after at least one additional cycle of the motor, as recited in Claim 8.

The Examiner has failed to show that Lim, Iwata, Lemirande, or any combination thereof, teaches or reasonably suggests the sensor, the determining an overloaded state step recited in Claim 8. It is well known that all of the claimed limitations must be taught or suggested by the prior art, and there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine the reference teachings. *In re Vaek,* 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

In addition, the present invention addresses the problem of efficiently and precisely opening and closing the sub-body of a portable wireless terminal by providing a device for controlling the opening/closing of a sub-body in an automatically and manually folded portable wireless terminal.

Iwata describes a power window driving control device which moves a window glass of a vehicle in directions by the driving force of a motor. The Iwata power window driving control device enables a foreign object to not continue to be caught between a window glass and a window frame even if a foreign object exists on the path along which the window glass is raised. The Iwata power window driving control device is large and includes numerous relays and switches, and effects vertical movement of a window glass. Iwata addresses the problem of foreign objects becoming caught between a window glass and a glass frame even if a foreign object exists on a path along which the window glass is raised. Iwata is not reasonably pertinent to the particular problem with which Appellant was concerned, e.g. for providing an apparatus for more efficiently and precisely controlling the position of opening and closing a sub-body (folder) of an automatic foldable mobile communication terminal.

Iwata is **non-analogous art** and one skilled in the art at the time the invention was made would not have arrived at the present invention based on Lim, Iwata, Lemirande, or any combination thereof, because the skilled artisan would not have considered the Iwata power window driving

control device to control opening and closing of a sub-body in an automatically and manually foldable mobile communication terminal because the Iwata power window driving control device is large and includes numerous relays and switches, and effects movement of a window glass in which a foreign object is not continued to be caught between a window glass and a window frame even if the foreign object exists on the path along which the window glass is raised.

Iwata is **non-analogous art** and is not applicable to addressing the obviousness of the subject matter at issue because Iwata is not in the field of Appellant's endeavor, and Iwata is not reasonably pertinent to the particular problem with which Appellant was concerned. For a reference to be applicable to addressing obviousness of the subject matter at issue, the reference must either be in the field of Appellant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the invention was concerned. *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). Further evidence of non-analogy is apparent because Iwata is classified in 318/447 while Lim is classified in 455/575, and because Iwata is different in structure and function from the present invention. The differences in structure and function of Iwata to the present invention carry far greater weight regarding analogy of Iwata to the present invention. *In re Ellis*, 476 F.2d 1370, 1372, 177 USPQ 526, 527 (CCPA 1973).

Furthermore, the Examiner has used Appellant's application as a blueprint and has merely focused on the differences between Lim, Iwata, Lemirande, and the claimed invention, and then stated that the differences themselves or individually are obvious after picking and choosing selected items from the prior art. It is well known that it is improper to use the claims as a frame, and use individual parts of prior art as a mosaic to recreate a facsimile of the invention. *Interconnect Planning Corp. v. Feil*, 227 USPQ 2d 543, 551 (Fed. Cir. 1985).

The Examiner has failed to establish a *prima facie* case of obviousness of Claim 8 for at least these reasons.

CONCLUSION

Based on at least the foregoing, and as the Examiner has failed to make out a *prima facie* case for an obviousness rejection, the rejections of Claims 1 and 4-8 must be reversed.

Accordingly, independent Claims 1, 4 and 6-8 are allowable over Lim, Iwata, Lemirande, or any combination thereof.

Dependent Claim 5 is also allowable over Lim, Iwata, Lemirande, or any combination thereof for at least the above reasons.

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CLAIMS APPENDIX

Claim 1. (Previously Presented) An automatically and manually folded portable wireless terminal having at least a main body and a sub-body installed on the main body so as to be opened and closed, comprising:

a first sensor for sensing a complete opening of the sub-body from the main body;

a second sensor for sensing a complete closing of the sub-body onto the main body;

an opening/closing device for opening/closing the sub-body in accordance with a control of opening/closing of the sub-body and having a motor housed inside of the terminal;

a motor overcurrent monitoring section having a current sensing resistor located between a first node and a second node determining an overload condition of the motor based on a difference between a first voltage applied to the first node and a second voltage applied to the second node for monitoring current flow to the motor to determine an overload condition of the motor; and

a control device for controlling operation of the motor in accordance with the overload condition as determined by the motor overcurrent monitoring section when complete opening/closing of the sub-body is sensed by the first and the second sensors when the opening/closing device automatically opens/closes the sub-body, and after at least one additional cycle of the motor after an overload condition is determined.

Claim 2. (Previously Presented) The automatically and manually folded portable wireless terminal of claim 1, wherein the motor overcurrent monitoring section comprises:

the first node connected to a battery output line for applying the first voltage corresponding to the battery voltage to a first input end of the control device;

the second node connected between the first node and the motor for applying the second voltage, which corresponds to a current supplied to the motor, to a second input end of the control device; and

the current sensing resistor located between the first node and the second node sensing the current supplied to the motor from the first node through the second node.

Claim 3 (Canceled)

Claim 4. (Previously Presented) A method for controlling opening/closing of a sub-body in a foldable portable wireless terminal having at least a main body, a sub-body installed on the main body so as to be openable and closable, a first sensor installed in the main body for sensing a complete opening of the sub-body from the main body, and a second sensor installed in the main body and the sub-body for sensing a complete closing of the sub-body onto the main body, the method comprising the steps of:

determining whether or not a complete opening/closing of the sub-body is sensed by the first and the second sensors during automatic opening/closing of the sub-body;

determining an overload condition of a motor housed inside of the terminal based on current supplied to the motor if incomplete opening/closing of the sub-body is sensed by using a current sensing resistor located between a first node and a second node and determining an overload condition of the motor based on a difference between a first voltage applied to the first node and a second voltage applied to the second node; and

controlling operation of the motor in accordance with the determined overload condition.

Claim 5. (Original) The method of claim 4, wherein the determination of the overload condition of the motor is made based on a voltage difference corresponding to a current difference between the current supplied to the motor in normal operation and the current supplied to the motor in the overload condition.

Claim 6. (Previously Presented) A method for controlling opening/closing of a sub-body in a foldable portable wireless terminal having a main body and a sub-body installed on the main body so as to be openable and closable, the method comprising the steps of:

operating a motor for automatically opening/closing the sub-body in accordance with an input by a user;

determining an overload condition of the motor for opening/closing the sub-body based on a voltage difference corresponding to a current difference between the current supplied to the motor in a normal operation and the current supplied to the motor in the overload condition by using a current sensing resistor located between a first node and a second node and determining an overload condition of the motor based on a difference between a first voltage applied to the first node and a second voltage applied to the second node; and

controlling operation of the motor for opening/closing the sub-body in accordance with the determined overload condition.

Claim 7. (Previously Presented) A method for controlling opening/closing of a sub-body in a foldable portable wireless terminal having at least a main body, a sub-body installed on the main body so as to be openable and closable, a first sensor for sensing a complete opening of the sub-body from the main body, and a second sensor for sensing a complete closing of the sub-body onto the main body, the method comprising the steps of:

determining an overloaded state of a motor housed inside of the terminal based on the current supplied to the housed motor if incomplete opening/closing of the sub-body is sensed by using a current sensing resistor located between a first node and a second node and determining an overload condition of the motor based on a difference between a first voltage applied to the first node and a second voltage applied to the second node;

controlling opening/closing of the sub-body repeatedly as many times as predetermined if incomplete opening/closing of the sub-body has been sensed and the housed motor is in an overloaded state; and

returning the sub-body to an initial state if incomplete opening/closing of the sub-body is sensed and the overloaded state continues after at least one additional cycle of the motor.

Claim 8. (Previously Presented) A method for controlling opening/closing of a sub-body in an automatically and manually folded portable wireless terminal having at least a main body, a sub-body installed on the main body so as to be openable and closable, and a sensor for sensing a complete opening of the sub-body from the main body, the method comprising the steps of:

determining whether or not the sensor senses a complete opening of the sub-body during automatic opening;

determining an overloaded state of a motor housed inside of the terminal based on current supplied to the housed motor if incomplete opening is sensed by the sensor and by using a current sensing resistor located between a first node and a second node and determining an overload condition of the motor based on a difference between a first voltage applied to the first node and a second voltage applied to the second node;

controlling opening of the sub-body as many times as predetermined if incomplete opening is sensed and the housed motor is determined to be in an overloaded state; and

ceasing operation of the housed motor if incomplete opening of the sub-body is sensed and the overloaded state of the housed motor continues after at least one additional cycle of the motor.

EVIDENCE APPENDIX

There is no evidence submitted pursuant to 37 C.F.R. § 1.130, 1.131, 1.132 or entered by the Examiner and relied upon by Appellants.

RELATED PROCEEDINGS APPENDIX

There are no known decisions rendered by a court or the Board in any proceeding identified pursuant to paragraph (c)(1)(ii) of 37 C.F.R. § 41.37.

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REVOCATION OF POWER OF ATTORNEY WITH NEW POWER OF ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS

Application Number	9/853,102
Filing Date	
First Named Inventor	
Art Unit	
Examiner Name	
Attorney Docket Number	678-614

I hereby revoke all previous powers of attorney given in the above-identified application.

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I am the:

☐ Applicant/Inventor

☒ Assignee of record of the entire interest. See 37 CFR 3.71.
Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)

SIGNATURE of Applicant or Assignee of Record

Signature	[signature]		
Name	Jong Yong Yun, President of Samsung Electronics Co., Ltd.		
Date	16. Nov. 2006	Telephone	

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐ *Total of ________ forms are submitted.

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